1 If the equation $x^2 - kx - 36 = 0$ has $x = 12$ as one root, what is the value of k?

1) 9
2) -9
3) 3
4) -3

9 Which quadratic equation has the roots $2 - \sqrt{3}$ and $2 + \sqrt{3}$?

1) $x^2 - 4x + 7 = 0$
2) $x^2 + 4x + 7 = 0$
3) $x^2 - 4x + 1 = 0$
4) $x^2 + 4x - 1 = 0$

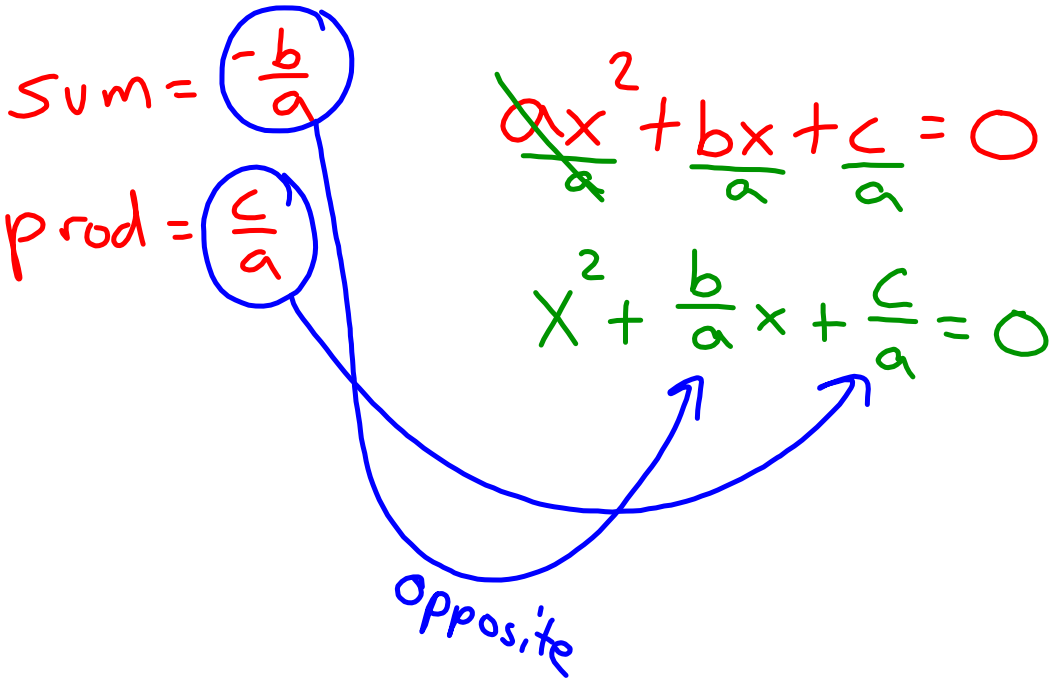
$\text{Sum} = -\frac{b}{a}$ $\quad ax^2+bx+c=0$

$\text{Product} = \frac{c}{a}$ $\quad$ roots 5, 2

$\text{Sum} = 5+2 = \frac{7}{1}$ $\quad -b=7$ $\quad \boxed{b=-7}$

$\text{Prod.} = 5\cdot 2 = \boxed{10=c}$

$\boxed{x^2-7x+10=0}$


sum = $\frac{-b}{a}$
prod = $\frac{c}{a}$
$ax^2 + bx + c = 0$
$x^2 + \frac{b}{a}x + \frac{c}{a} = 0$
opposite

HW check:

38) roots = $2+\sqrt{3}$, $2-\sqrt{3}$

Sum = $(2+\sqrt{3})+(2-\sqrt{3}) = 4$

Prod = $(2+\sqrt{3})(2-\sqrt{3}) = 1$

$x^2 - (4)x + (1) = 0$

$x^2 - 4x + 1 = 0$

42) $\frac{3-2i}{2}$, $\frac{3+2i}{2}$

Sum: $\left(\frac{3-2i}{2}\right)+\left(\frac{3+2i}{2}\right)=\frac{6}{2}=3$

Product: $\left(\frac{3-2i}{2}\right)\left(\frac{3+2i}{2}\right)=\frac{13}{4}$

$x^2-(3)x+\left(\frac{13}{4}\right)=0$

LCD: 4

$4\left(x^2-3x+\frac{13}{4}=0\right)$

$4x^2-12x+13=0$

44) Let x = 1st root = 6

$x+3$ = 2nd root = 6+3 = 9

sum = 15

(add)

$x + x+3 = 15$

$2x+3=15$

$-3 \quad -3$

$\frac{2x}{2} = \frac{12}{2}$

$x=6$

The roots are 6 + 9

$x^2-15x+54=0$

sum = 15 $b=-15$

prod = 54 $c=54$